

SAFETY DATA SHEET

Section 1: IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND SUPPLIER

Product Name:	MODDUS EVO
Design Code:	A17600C
Recommended Use:	A plant growth regulator to reduce the risk of lodging in wheat, barley and oats and promote seed yield increases in ryegrass seed crops.
Company Details:	Syngenta Crop Protection Limited
Address:	Tower II, Level 7, 110 Symonds Street Private Bag 92618, Symonds Street AUCKLAND NEW ZEALAND
Telephone number:	(weekdays) 09 - 306 1500
Emergency Telephone number:	(24 Hours) 0800 734 607
National Poisons & Hazchem Information Centre :	0800 POISON (0800 764 766)
Date of Preparation:	15 July 2016

Section 2: HAZARDS IDENTIFICATION

Hazard classification:	3.1D, 6.1E, 6.4A, 9.1D
Priority Identifier:	WARNING KEEP OUT OF REACH OF CHILDREN
Secondary Identifiers:	3.1D = Combustible liquid 6.1E = May be harmful if swallowed. 6.4A = Causes serious eye irritation 9.1D = Harmful to aquatic organisms.

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

<i>Pure Substance:</i>	
Chemical Identity of pure substance:	Ethyl 4-(cyclopropylhydroxymethylene)-3,5-dioxocyclohexanecarboxylate
Common Name:	Trinexapac-ethyl
Synonyms:	CGA 163935
CAS number:	95266-40-3

<i>Mixture:</i>		
Chemical Identity of ingredients:		
Ingredient	CAS no.	Content (% w/w)
Trinexapac-ethyl (technical grade)	95266-40-3	25
2-(((1-((2-ethylhexyl)oxy)oxy)oxy)oxy)propan-2-yl)oxy ethanol	64366-70-7	45 - 55
4-methylcyclohexan-1-one	589-92-4	15 - 20
calcium dodecyl-benzene sulphonate	26264-06-2	1 - 5
	84989-14-0	
	90194-26-6	
2-methylpropan-1-ol	78-83-1	1 - 2
other ingredients determined not to be hazardous	-	to 100%

Section 4: FIRST AID MEASURES

Necessary First Aid measures:	For advice contact the National Poisons Centre on 0800 POISON (0800 764 766) or a doctor immediately. Begin artificial respiration if the victim is not breathing. Use mouth to nose rather than mouth to mouth. Obtain medical attention.
	Swallowed: If swallowed DO NOT induce vomiting.
	Eye: If concentrate or spray solution enters the eyes wash it out immediately with water. Remove contact lenses if present and easy to do so, continue rinsing. If eye irritation persists get medical advice/attention.
	Skin: If skin contact occurs remove contaminated clothing and wash affected areas thoroughly with running water.
	Inhaled: If inhaled move the victim to fresh air immediately
Poisoning symptoms:	No case of human poisoning due to this product is on record. The poisoning symptoms observed for laboratory mammals were non-specific.
Workplace facilities:	No specific facilities required. Standard emergency equipment must be available.
Hygiene Practices:	Avoid contact with skin and eyes and inhalation of concentrate or spray mist. When mixing or applying, wear protective clothing, including face shield, impervious gloves and footwear. If clothing becomes contaminated with product, remove clothing immediately. DO NOT eat, drink or smoke while using. Wash hands and exposed skin thoroughly with soap and water before meals and after work. Wash protective clothing daily after work.
Notes for Medical Personnel:	No specific antidote is available. If poisoning is suspected apply symptomatic therapy.

Section 5: FIRE-FIGHTING MEASURES

Type of Hazard:	This product is combustible at elevated temperatures.
Fire Hazard Properties:	Combustion products are toxic and or irritant. Measures have to be taken to prevent the contaminated extinguishing agent from seeping into the ground or from spreading uncontrollably.
Regulatory Requirements:	3.1D = Combustible liquid Stores with quantities of 500 litres or more require 2 fire extinguishers. Hazardous Substances (Emergency Management) Regulations 2001. Code EM10 (Regs 21-24), Code EM11 (Regs 25-34), Code EM12 (Regs 35-41) and Code EM13 (Reg 42)
Extinguishing Media and methods:	Extinguish warehouse and factory fires using dry chemical extinguisher, foam, carbon dioxide or fine-water spray. DO NOT use direct jet of water.
Hazchem Code:	2X
Recommended Protective Clothing:	When fighting a major fire wear an air-supplied respirator. Wear protective equipment.

Section 6: ACCIDENTIAL RELEASE MEASURES

Personal Precautions:	Emergency Procedures: Ensure suitable personal protection during removal of spillages. This means wearing eye protection, chemically resistant gloves, boots and overalls.
Environmental Precautions:	Washings must be prevented from entering surface water drains or waterways.
Procedure for spill:	<ol style="list-style-type: none">(1) Keep all bystanders away.(2) Wear goggles, half face-piece respirator with combined dust and vapour cartridge, full length clothing and PVC gloves.(3) Reposition any leaking containers so as to minimise further leakage.(4) Dam and absorb spill with an absorbent material (e.g. sand or soil).(5) Shovel the absorbed spill into drums.(6) Decontaminate the spill area with detergent and water and rinse with the smallest volume of water practicable.
Procedure for Disposal:	Disposal of the absorbed material will depend upon the extent of the spill. Contaminated material must be disposed of in accordance with all local authority requirements. It is suggested: <ul style="list-style-type: none">• For quantities up to 50 litres of product bury in a secure approved landfill site.• For quantities greater than 50 litres seek advice from the manufacturer (use emergency contact number below) before attempting disposal. Contain in a secure location until disposal method is established.

Section 7: HANDLING AND STORAGE

	Handling:
Precautions for safe handling:	<i>Precautions for safe handling; refer to Haznote.</i> No special technical protective measures required. No special handling advice required.
Regulatory Requirements:	3.1D = Combustible liquid Stores with quantities of 500 litres or more require 2 fire extinguishers. Hazardous Substances (Emergency Management) Regulations 2001. Code EM10 (Regs 21-24), Code EM11 (Regs 25-34), Code EM12 (Regs 35-41) and Code EM13 (Reg 42)
Handling practices:	Avoid contact with skin and eyes and inhalation of concentrate or spray mist. When using, do not eat, drink or smoke. Wash face and hands before eating, drinking or smoking.
Approved Handlers:	Approved Handlers not required.

Conditions for Safe Storage:	Storage: Keep out of reach of children. Keep in original containers and tightly closed. Keep away from food, drink and animal feeding stuffs. Store in a cool, dry, well ventilated place and protect from sunlight. Avoid temperatures below 5°C or above 35°C.
Store Site Requirements:	Stores with quantities of 500 litres or more require 2 fire extinguishers Signage will be required at sites holding 10,000 litres or more of any product classified as 9.1D (eg MODDUS EVO) Sites with 1,000 litres or more require secondary containment
Packaging:	Store in original container, tightly closed, away from foodstuffs.

Section 8: EXPOSURE CONTROL / PERSONAL PROTECTION

ALWAYS READ AND FOLLOW THE LABEL INSTRUCTIONS AND WARNINGS

	Workplace Exposure Guidelines:
Workplace Exposure Standards:	Trinexapac-ethyl: 8 h TWA: 10 mg/m ³ Source: Syngenta 2-methylpropan-1-ol 8 h TWA : 50 ppm Source : ACGIH, SUVA, UK HSE
Application in the workplace:	Not required
Exposure standards outside the workplace:	Not required
Engineering controls:	No special requirements. Product is used outdoors. Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated. The extent of these protection measures depends on the actual risks in use. If airborne mists or vapours are generated, use local exhaust ventilation controls. Assess exposure and use any additional measures to keep airborne levels below any relevant exposure limit. Follow precaution statements on the label and the use and safety directions in Code of Practice for the Management of Agrichemical NZS8409.
Personal Protection:	When mixing or applying wear protective clothing, including goggles, face protection, overalls, waterproof gloves and footwear. Use only protective equipment bearing the mark of the Standards Association with Australia/ New Zealand. In case of heavy exposure, wear half face-piece respirator with combined dust and vapour cartridge, chemical resistant gloves and heavy duty cotton overalls.
General Hygiene:	Change work clothes daily. May irritate the eyes and skin. Avoid contact with eyes and skin. Do not inhale spray mist. If product gets on skin immediately wash area with soap and water. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Yellow amber to amber liquid
Odour:	like ketone
pH value	3.6 at 1% w/v
Flashpoint:	69 °C at 100.3 kPa Pensky-Martens c.c.
Auto-ignition temperature:	375 °C
Oxidising properties:	not oxidising
Explosive properties:	not explosive
Density:	1.036 g/cm ³ at 20°C
Solubility in other solvents:	No data available
Viscosity, dynamic:	50.62 mPa.s at 20°C 21.47 mPa.s at 40°C
Surface Tension:	27.4 mN/m at 20°C

Section 10: STABILITY AND REACTIVITY

Stability of the Substance:	Stable under standard conditions.
Conditions to Avoid:	None known
Material to Avoid:	none known
Hazardous decomposition products	Combustion or thermal decomposition will evolve toxic and irritant vapours.
Hazardous polymerisation	Does not occur.
Specific Data	not applicable
Sensitivity:	Not sensitive to humidity, air or light. Thermally not sensitive.

Section 11: TOXICOLOGICAL INFORMATION

HSNO Classifications:

- 6.1E - May be harmful if swallowed.
6.4D - May cause serious eye irritation

Acute Effects (Undiluted product)

Swallowed:	LD ₅₀	5000 mg/kg (rat)
Dermal absorption:	LD ₅₀	>5000 mg/kg (rat)
Inhaled:	LC ₅₀ (4 h)	>5.69 mg/L (rat)
<u>Irritation</u>		
Eye:	IRRITANT (rabbit/HSNO Classification)	
Skin:	NON IRRITANT (rabbit/HSNO Classification)	
<u>Sensitization</u>	NOT A SENSITISER (guinea pigs - Buehler test)	

Chronic / Long Term Effects (Active Ingredient)

Trinexapac-ethyl technical has been extensively tested on laboratory mammals and in test-tube systems. No evidence of neurotoxic, mutagenic, teratogenic or reproductive effects was obtained.

Section 12: ENVIRONMENTAL INFORMATION

HSNO Classifications:

9.1D = Harmful to the aquatic environment

Environmental Risk and Safety Phrases: Avoid contamination of any water supply with chemical or empty container

The information presented below is for the active ingredient, trinexapac-ethyl and the product, MODDUS EVO. A thorough review of environmental information is not possible in this document.

Ecotoxicity Effects

Toxicity to Birds:	LD ₅₀ >2000 mg/kg (Mallard duck) (active ingredient) NOEL > 5200 mg/kg (Bobwhite quail) (active ingredient)
Acute toxicity to fish:	LC ₅₀ (96 h) = 35 mg/L (<i>Oncorhynchus mykiss</i> (Rainbow trout)) (product)
Growth inhibition, Algae:	E ₀ C ₅₀ (96 h)= 38 mg/L (<i>Pseudokirchneriella subcapitata</i> (Freshwater green algae)) (product) E _r C ₅₀ (96 h)= 68 mg/L (<i>Pseudokirchneriella subcapitata</i> (Freshwater green algae)) (product) E _r C ₅₀ (7 d)= 65 mg/L (<i>Lemna gibba</i> (Duckweed)) (product)
Toxicity to aquatic Invertebrates:	EC ₅₀ (48h) = 80 mg/L (Daphnia magna (water flea) (product)
Toxicity to soil dwelling organisms:	LC ₅₀ (14 days) >1000 mg/kg (earthworms) (product)
Toxicity to Bees:	LD ₅₀ (oral) >221 µg/bee (product) LD ₅₀ (contact) 350 µg/bee (product)

Environmental Fate

The information presented here is for the active ingredient, trinexapac-ethyl. Trinexapac-ethyl does not bioaccumulate. Trinexapac-ethyl is not persistent in water. Trinexapac-ethyl is not persistent in soil. Trinexapac-ethyl has medium mobility in soil. In soil, the ester undergoes rapid degradation, DT₅₀ <1 day. The acid has K_d values 1.5-16, K_{oc} 140-600. Further metabolism is rapid, DT₅₀ typically 2-5 weeks. Within 4-8 weeks, 50% is mineralised to CO₂. Hydrolytically stable under normal environmental conditions. K_{ow} logP = 1.60 (pH 5.3; 25°C)

Section 13: DISPOSAL CONSIDERATIONS

Product Disposal: Dispose of this product only by using according to the label, or at an approved landfill or other approved facility.

Container Disposal: Ensure the container is empty. Triple rinse empty container and add rinsate to the spray tank. Recycle empty container through Agrecovery (0800 247 326, www.agrecovery.co.nz). Otherwise crush and bury in a suitable landfill. DO NOT reuse this container for any other purpose.

Section 14: TRANSPORT INFORMATION

Rail / Road (RID/ADR)	UN-No:	3082
	Class:	9
	Packaging Group:	III
	Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Trinexapac-ethyl)
Sea (IMDG-Code)	UN-No:	3082
	Class:	9
	Packaging Group:	III
	Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Trinexapac-ethyl)
	MARINE POLLUTANT:	Yes
Air (ICAO/IATA)	UN-No:	3082
	Class:	9
	Packaging Group:	III
	Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Trinexapac-ethyl)

Section 15: REGULATORY INFORMATION

HSNO Approval Number:	HSR100976
HSNO Controls (inc. Tracking and Record Keeping):	See http://www.epa.govt.nz/search-databases/Pages/controls-search.aspx for controls.
ACVM Registration:	P9128
ACVM Controls:	See www.foodsafety.govt.nz/industry/acvm for registration conditions.

Section 16: OTHER INFORMATION

Note: This product is a registered agricultural chemical and must therefore be used in accordance with the container label directions. A comprehensive package of toxicological and environmental data for the active ingredients of this product has been submitted to the Government health and environment authorities and has been evaluated by expert toxicologists and environmental scientists.

CONTACT POINT: Business Manager - Crop Protection: (09) 306 1503
24 HOURS EMERGENCY CONTACT: 0800 734 607

This Material Safety Data Sheet summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

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DISCLAIMER

This product complies with the specifications in its statutory registration. Implied terms and warranties are excluded. Syngenta's liability for breach of the express or any non-excludable implied warranty is limited to product replacement or purchase price refund. The purchaser must determine suitability for intended purpose and take all proper precautions in the handling, storage and use of the product including those on the label and/or safety data sheet failing which Syngenta shall have no liability.